# MOVABLE BARRIER OPERATOR SYSTEM DISPLAY METHOD AND APPARATUS

## FIELD OF THE INVENTION

**[0001]** This invention relates generally to movable barrier operator systems.

## BACKGROUND OF THE INVENTION

**[0002]** Movable barrier operator systems of various kinds are known in the art. In general, such systems serve to effect selective movement of a movable barrier (including but not limited to garage doors of various kinds, rolling shutters, and other horizontally or vertically sliding, moving, or pivoting doors, gates, arms, and the like) between at least a first position and a second position (such as between an opened and a closed position). Many such systems include at least one and frequently a plurality of movable barrier operator system operational components. Such components serve in general to instigate active operation of the system in general and often (but not always) more specifically the active operation of the movable barrier itself. Examples of such operational components include but are not limited to movable barrier operators and movable barrier operator remote control devices (including wired and wireless remote control devices and portable and stationary remote control devices).

**[0003]** The operational strategies, component configuration and deployment, and feature sets of such systems continues to grow in complexity. At the same time, however, many users are unable or unwilling to make effective use of a challenging user interface. As a result, many modern movable barrier operator systems that support a variety of functions and operational states nevertheless offer only a very limited user interface. For example, only a very few buttons or knobs may be presented in a given prior art system. While such design structures do, in at least some sense, often succeed in maintaining potential user cognitive loading at or below some desired level, these same user interface conditions also potentially unduly constrain the breadth and/or depth of system functionality and capability. This, in turn, can ultimately lead to reduced user satisfaction.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0004]** The above needs are at least partially met through provision of the movable barrier operator system display method and apparatus described in the following detailed description, particularly when studied in conjunction with the drawings, wherein:

**[0005]** FIG. **1** comprises a block diagram as configured in accordance with various embodiments of the invention;

**[0006]** FIG. **2** comprises a block diagram as configured in accordance with various embodiments of the invention;

**[0007]** FIG. **3** comprises a schematic representation as configured in accordance with various embodiments of the invention;

**[0008]** FIG. **4** comprises a schematic representation as configured in accordance with various embodiments of the invention;

**[0009]** FIG. **5** comprises a schematic representation as configured in accordance with various embodiments of the invention;

**[0010]** FIG. **6** comprises a schematic representation as configured in accordance with various embodiments of the invention;

**[0011]** FIG. **7** comprises a schematic representation as configured in accordance with various embodiments of the invention;

**[0012]** FIG. **8** comprises a schematic representation as configured in accordance with various embodiments of the invention;

**[0013]** FIG. **9** comprises a flow diagram as configured in accordance with various embodiments of the invention;

**[0014]** FIG. **10** comprises a flow diagram as configured in accordance with various embodiments of the invention; and

**[0015]** FIG. **11** comprises a flow diagram as configured in accordance with various embodiments of the invention.

**[0016]** Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been drawn to scale. For example, the scale as is suggested for some of the elements in the figures may be exaggerated relative to other elements to help to improve understanding of various embodiments of the present invention. Also, common but well-understood elements that are useful or necessary in a commercially feasible embodiment are often not depicted in order to facilitate a less obstructed view of these various embodiments of the present invention. It will also be understood that the terms and expressions used herein have the ordinary meaning as is usually accorded to such terms and expressions by those skilled in the corresponding respective areas of inquiry and study except where other specific meanings have otherwise been set forth herein.

## DETAILED DESCRIPTION OF THE INVENTION

**[0017]** Generally speaking, pursuant to these various embodiments, a movable barrier operator system operational component, such as a movable barrier operator and/or a movable barrier operator remote control device, further comprises an integral display. In some embodiments this display comprises at least one of an alphanumeric display and a graphics display. By at least one approach the movable barrier operator system operational component comprises a movable barrier operator system wall-mounted user-input interface and the display comprises at least a numeric, and preferably at least an alphanumeric, display.

**[0018]** In some embodiments the display can itself comprise a user-input interface (as when the display comprises, in whole or in part, a touch screen display surface). In addition, or in lieu thereof, such a display can be used in close conjunction with one or more user-assertable control surfaces (such as but not limited to push buttons and other switches). Such user-assertable control surfaces can comprise a fixed-function user-assertable control surface or a programmable function user-assertable control surface. It is also possible to configure such an operational component to comprise an audio interface to facilitate, for example, a speech recognition-based interface to thereby receive and process spoken commands or inquiries from a user.

**[0019]** So configured, an operational component having some user input and/or active system control capability and/or responsibility can be further imbued with an ability to provide varying visual content to a user. This, in turn, can facilitate ease of installation or usage, and/or the deployment of a greater number of functional options or capabilities than a present system would typically usefully offer.

**[0020]** Referring now to the drawings, and in particular to FIG. **1**, an illustrative deployment in conformance with many of these embodiments comprises a movable barrier operator system operational component **11** that operably couples, at